Cocoa Export Performance to Economic Growth in South Sulawesi

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ABSTRACT
This research aims to analyze the factors influencing cocoa export performance to economic growth in South Sulawesi. The factors include foreign direct investment (FDI), real exchange rate (RER), and the growth of GDP in export destination countries. The research was completed by processing quarterly data about export trading from South Sulawesi in 2008 – 2015 to top ten main destination countries of cocoa export. Path analysis method was used in this research; export performance as an intervening variable; and economic growth is an endogenous variable. The results reveal that the export performance has a positive and significant influence on the economic growth. Furthermore, the growth of GDP in partner countries has a positive and significant influence on the economic growth indirectly through the export performance, while both FDI and RER variables does not have a significant influence.

Keywords: export performance, economic growth, FDI, RER
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1 Introduction
Cocoa is the main agricultural export commodities from South Sulawesi province of Indonesia. Cocoa export was the second ranking of the largest contributor export value from South Sulawesi in 2008-2015, with export value held in 11-18% per year. Export Performance of cocoa mostly influenced by the world trade price realization for cocoa beans, which is relatively stable. The review of the price per tons in year 2008 - 2015 is fluctuating month-per-month for a maximum +7.94% and a minimum -6%. Whereas the world consumption of chocolate or cocoa derivative products growth to 3-4% each year, with consumption have growing up to 20% on populous country such as China, India and Indonesia.

The market opportunities being a big expectation for Indonesia as the third largest producer of cocoa beans in the world, after Cote d’Ivoire’s and Ghana. Where is South Sulawesi province as a primary marketplace of cocoa bean, and become a big challenging on cocoa processing industry. It is become a critical point how to augment the value added of cocoa products for increasing the value of export trading. Furthermore, the impact can make exports driving growth or namely export-led growth.

Analysis of regional economics showed that intensity levels of goods movement and services (output) and production factors (input) between regions are much higher than between countries, so that the dynamics of change in a region is higher than in a country (Razak, 2009). Statistic data showed, that contribution of overseas export performance and inter-island for all commodities from South Sulawesi counted 25.24% of regional real GDP in 2014. Growth of regional GDP South Sulawesi in 2014 achieved 7.54% and 7.15% in 2015, higher than Indonesia’s GDP growth in 2014 achieved 5.0% and 4.8% in 2015 (BPS, 2016). The regional economic growth achievements of course being determinant to the nationals economic growth.

Base on the export realization data of the cocoa commodity, represents by the South Sulawesi Provincial Industry and Trade Office. By broad (Harmonized System, HS) product categories for the last 5 years, the contribution of
the Cocoa commodity (HS-18) to the total export performance of South Sulawesi is: 16.47% (2011); 15.61% (2012); 18.60% (2013); 17.75% (2014) and 14.36% (2015). While proportion of export to Gross Regional Domestic Product (GRDP) South Sulawesi according to the Central Statistics Agency of South Sulawesi Province is: 9.33% (2011); 7.68% (2012); 7.56% (2013); 7.72% (2014) and 6.48% (2015). Thus, cocoa export contribution toward GRDP is about 1.54% (2011); 1.20% (2012); 1.41% (2013); 1.37% (2014) and 0.93% (2015).

The main objective of this paper is to describe the influencing factors of cocoa export performance to economic growth. We analyze that the factors include foreign direct investment (FDI), real exchange rate (RER), and the growth of GDP partner countries. The research was completed by processing data about export trading from South Sulawesi, presented in a time series 2008 – 2015 (every three-month period) to top ten main destination countries of cocoa export. Countries are Malaysia, the United States, China, Germany, Singapore, India, Thailand, Russia, Japan and Brazil.

This paper is divided into four sections. In Section 2, we discuss some theoretical and empirical reviews of related literature, include how to calculate the real exchange rate (RER) index for ten main export partner countries. Next, we present a reduced form economic growth that involves export performance factors, and techniques of estimation. We present the results and discussion in Section 4. Section 5 the conclusion and recommendations.

2 Reviews Literature

2.1 Exports Driving Growth

Growth theory pioneered by Romer (1986) and Lucas (1988) provides persuasive intellectual support that an open economic system has a positive influence on economic growth. Romer (1992), Grossman and Helpman (1991) and Barro and Sala-I-Marti (1995) suggest that countries are more open to the whole world have a greater ability to absorb technological advances produced by developed countries. Then, Barro and Sala-I-Marti (1995) assume that two countries (one developed and one developing), with distinguished input factors, and no capital mobility. Innovations occur in developed countries, while poor countries become followers who will try to imitating implementation of the new technology in their countries (Salvatore, D. 1997).

In over the last half century, the unprecedented development of the world economy through the fact by many empirical studies, most periods of high growth are marked by high export growth, so that research results can declared the export sector has a major role in the economic growth process. Especially after the Asian Tigers (Hong Kong, Republic of Korea, Taiwan Province of China, and Singapore) were very successful in adopting an export-driven economic development model, and then many countries started the pattern. It was agreed that at the time economic policy was announced much attention would be paid to the export sector. The period of successful growth that shows export growth is known as growth that is triggered by export-led or export-led growth.

Based on the working journal of International Monetary Fund (IMF) to solicit representatives of export-led growth, in the period 1958-2004 in 42 countries (in the OECD, Asia, Africa and Latin America) which promoted economic growth and high export growth. Using data of relative labor productivity growth in the trade sector (tradable) and non-trade sector (non-tradable), and trade in real exchange rate (RER). The RER serves as an indicator to distinguish between periods of growth that are classified as exports driving growth or growth driving exports.

In exports driving growth, RER foreign-currency must be appreciated; on the contrary, in the growth driving exports, RER foreign-currency must be depreciated. Conditions where demand for imports increases, which means supply of real prices of foreign currencies. This will be a stimulant for the expansion of the export sector, thus exports grow to pay for the increased value of
imports, and exports can grow faster than GDP if the income elasticity of import demand is high enough. Furthermore, there are 81 episodes of data that show high GDP growth with higher export growth, the result is: 39 episodes are consistent with the hypothesis of export-led growth that experiences an appreciation of RER foreign-currency; while 33 episodes depreciated of RER foreign-currency and 9 others were insignificant in exchange rates. Increased productivity in the non-tradable sector can result in high GDP and higher export growth with RER depreciation through increased productivity in the non-tradable sector. Therefore, the role of the non-tradable sector is as important as the tradable sector in driving GDP and exports to grow rapidly (Yang, J., 2008).

The export supply of a commodity depends on the import demand of the commodity. If import demand increases, which results in a supply of real prices of foreign currencies also increasing, which means an over-valued exchange rate, then the domestic currency will experience an under-valued exchange rate instead. Furthermore, if the income from import demand is elastic (E > 1) or the quantity change ratio is greater than the price change ratio then exports can grow faster, so it is said export performance triggers economic growth (export-led growth).

2.2 Real Exchange Rate (RER) Index from Top Ten Main Export Partner Countries

Real exchange rate is a relative price of goods from two countries whose make some trade. RER states the rate at which goods are traded in one country for goods from other countries. Mankiw (2003) divides exchange rate into two, nominal exchange rate and real exchange rate. The relationship between real and nominal exchange rate is:

$$ RER = e^{\frac{P^*}{P}} $$  \hspace{1cm} (1)

Whereas:

- \( RER \) = real exchange rate
- \( e \) = nominal exchange rate
- \( P^* \) = trading partner price index
- \( P \) = domestic price index

The lower value of RER index indicates the less competitive RER of the country. The decline in trade performance (export-import), a weakening exchange rate and higher inflation compared to trading partner countries pushed the decline in a country’s RER index (Gunawan, A.B., 2014). According to Krugman et al (2012), changes in exchange rates can be divided into two, namely depreciation and appreciation. If other conditions remain (ceteris paribus), then: (1) depreciation of a country’s currency causes the price of its goods to be cheaper for foreign parties and; (2) appreciation of a country’s currency causes the price of its goods to be more expensive for foreign parties.

In this study there are ten countries which are the main destination countries for cocoa exports, taking into account the exchange rates of the country’s currencies through the weighted of the cocoa export trade from South Sulawesi. The calculation referred to RER index, which is obtained by calculating the trade weighted nominal exchange rate (NER) of ten countries currency, and the weighted customer price index (CPI) against Indonesia's CPI.

Obtained by calculating multilateral RER to ten main export destination countries, which is calculated through weighted of the export trade value using the following formula:

$$ RER = \sum_{i=1}^{n} NER_i^* \frac{\sum_{i=1}^{n} p_i^* w_i^*}{p_d} $$  \hspace{1cm} (2)

Where:

- \( RER \) = real exchange rate index
- \( NER_i^* \) = nominal exchange rate index of country i
- \( w_i^* \) = export weighted to country i (percent)
- \( p_i^* \) = CPI of country i
- \( p_d \) = CPI of Indonesia
- \( n \) = 10
- \( i \) = trading partner (1st to 10th)
Furthermore, the calculation results of RER index in 2008 - 2015 (every three-month period) to the ten main destination countries of cocoa export from South Sulawesi province are at the lowest rate 95.80 and the highest 121.61.

2.3 Foreign Direct Investment (FDI) Effects

FDI according to the OECD (Organization for Economic Co-operation and Development) is a cross-border investment category made by residents in a country with the aim of building long-term profits in a company whose ownership is by residents of another country. Theoretical exposure in supporting FDI in the era of globalization and the desire to increase the level of employment and local growth through spillovers because the technology and knowledge possessed by foreign companies have an impact on increasing the number of products. Foreign investment has benefits for the host countries, even if MNCs (Multinational Corporation) conduct operations abroad, they are affiliated with domestic companies.

Bloomstrom and Kokko (2003) declare, the size of the company indicated by the number of employees, consisting of permanent workers and contract workers is a general indicator of the company's fundamental strength. This has a positive relationship for exporting for larger companies, which have more resources that can be used to enter foreign markets. It is hoped for many countries that MNC (Multinational Corporation) will increase employment, export numbers and tax revenues. A number of countries can receive foreign investment by providing various forms of investment incentives to encourage foreign-owned companies to invest in their territory, in the form of fiscal incentives, such as tax holidays and lower taxes for foreign investors, financial incentives such as grants and preferential loans for multinational companies and measures such as market preferences, infrastructure, and even monopoly rights.

This benefit takes the form of various types of externalities or spillovers. For example, local companies can increase their productivity in the form of backward linkages as a result of affiliation with MNCs, they may imitate MNC technology or hire workers who are trained by multinational companies. Increased competition that occurs as a result of the entry of foreign companies provides benefits, especially forcing local companies to introduce new technologies and work harder. However, spillovers of foreign multinationals provide benefits if foreign investments provide social benefits. Construction of facilities and infrastructure needs to be done to attract foreign investors so as to increase inflows greater than FDI.

3 Research Methods

This research was conducted in Makassar with data on the cocoa export trade (HS-18), in the form of cocoa beans (HS-1801) and all processed cocoa products (HS-1802; 1804; 1805; & 1806), and the total export value commodity from South Sulawesi. The selected period is quarterly period in 2008-2015, to the ten main export destination countries of cocoa from South Sulawesi province. Countries are Malaysia, the United States, China, Germany, Singapore, India, Thailand, Russia, Japan and Brazil.

The data used in this study are secondary data obtained directly from the Department of Industry and Trade of South Sulawesi Province (Disperindag Sulsel). The data obtained through internet access, namely data on the website of Bank Indonesia, Investment Coordinating Board (BKPM), Central Bureau of Statistics Indonesia (BPS), International Cocoa Organization (ICCO), Organization for Economic Cooperation and Development (OECD), World Bank, United Nations Comtrade and Trading Economics.

In accomplishing the aim, this paper done through a structural equation model outlined on the conceptual framework in figure 1. Hypothesis 1-3 estimation of the direct and indirect effects will be carried out simultaneously by linear regression with path analysis, using the Maximum Likelihood estimation method with the IBM SPSS Amos software. Equation function in simultaneous model with reduced form:
\[ Y_1 = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \varepsilon_1 \]  
\[ Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 Y_1 + \varepsilon_2 \]  
Substitution (i) into (ii):
\[ Y_2 = \alpha_0 + \alpha_1 X_1 + \beta_2 (\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \varepsilon_1) + \varepsilon_2 \]
\[ Y_2 = \alpha_0 \beta_2 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \beta_2 \varepsilon_1 + \varepsilon_2 \]
\[ Y_2 = \gamma_0 + \gamma_1 X_1 + \gamma_2 X_2 + \gamma_3 X_3 + \varepsilon_3 \]

Whereas:
\[ \gamma_0 = \alpha_0 \beta_2 + \alpha_1 \] is a constant
\[ \gamma_1 = \alpha_1 \beta_2 + \beta_1 \] is the total effect of \( X_1 \) on \( Y_2 \) consisting of a direct influence of \( X_1 \) on \( Y_2 \) (= \( \beta_1 \)), and an indirect effect through \( Y_1 \) (= \( \alpha_1 \beta_2 \))
\[ \gamma_2 = \alpha_2 \beta_2 \] is the indirect effect of \( X_2 \) on \( Y_2 \) through \( Y_1 \)
\[ \gamma_3 = \alpha_3 \beta_2 \] is the indirect effect of \( X_3 \) on \( Y_2 \) through \( Y_1 \)
\[ \varepsilon_3 = \beta_2 \varepsilon_1 + \varepsilon_2 \] is the composite random error

![Conceptual Framework](image)

**Fig. 1.** Conceptual Framework

We constructed hypotheses according to the conceptual framework, each exogenous variable to endogenous variable:
1. **H1**, FDI has a positive and significant effect directly on Economic Growth, a positive and significant effect indirectly on Economic Growth, through Export Performance;
2. **H2**, RER has a positive and significant effect indirectly on Economic Growth, through Export Performance;
3. **H3**, Growth GDP Partner has a positive and significant effect indirectly on Economic Growth, through Export Performance.

In order to process the observational data, we defined variables with the following assumptions:
1. **FDI** \((X_1)\) expressed in percent, is the ratio of realizable value of FDI towards realization the sum of FDI and DDI (Domestic Direct Investment) in South Sulawesi;
2. **RER** index \((X_2)\) details as mentioned in point 2.2. above;
3. **Growth GDP Partner** \((X_3)\) expressed in percent, is the average value of real GDP growth of ten exports destination countries (Malaysia, USA, China, Germany, Singapore, India, Thailand, Russia, Japan and Brazil), the growth rate quarterly (quarter on quarter, q.o.q);
4. **Export Performance** \((Y_1)\) expressed in percent, is the ratio from exports cocoa revenue (HS-18) from South Sulawesi to the top ten exports cocoa destination countries, toward the total export revenue of South Sulawesi to all export destinations;
5. **Economic Growth** \((Y_2)\) expressed in percent, is the real regional economic growth of South Sulawesi, the growth rate quarterly of year on year (y.o.y).

**4 Result and Discussion**

The model reliability in this study is estimated by R-Square, can be seen in Table 1. R-Square \( R^2 \) is 0.185 means that 18.5% of variation changes in Cocoa Export Performance variable can be explained simultaneously by variation changes in the variables of FDI, RER and Growth GDP Trading Partners. The remaining 81.5% is determined by variables or other factors outside the model. While, value of R-Square \( R^2 \) is 0.119 means that 11.9% of variation changes in Economic Growth variable can be explained simultaneously by variation changes in the variables of Cocoa Export Performance and FDI. The remaining 88.1% is determined by variables or other factors outside the model.
4.1 Path Analysis Regression

Table 1. Squared Multiple Correlations

<table>
<thead>
<tr>
<th>Estimate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>0.185</td>
</tr>
<tr>
<td>Y2</td>
<td>0.119</td>
</tr>
</tbody>
</table>

Table 2. Regression Weights

<table>
<thead>
<tr>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1 &lt;---- X2</td>
<td>0.076</td>
<td>0.078</td>
<td>0.975</td>
<td>0.330</td>
</tr>
<tr>
<td>Y1 &lt;---- X3</td>
<td>0.862</td>
<td>0.352</td>
<td>2.449</td>
<td>0.014</td>
</tr>
<tr>
<td>Y1 &lt;---- X1</td>
<td>0.005</td>
<td>0.019</td>
<td>0.273</td>
<td>0.785</td>
</tr>
<tr>
<td>Y2 &lt;---- X1</td>
<td>0.006</td>
<td>0.008</td>
<td>0.773</td>
<td>0.440</td>
</tr>
<tr>
<td>Y2 &lt;---- Y2</td>
<td>0.123</td>
<td>0.066</td>
<td>1.855</td>
<td>0.064</td>
</tr>
</tbody>
</table>

Fig. 2. Path Analysis Estimation Framework

Based on Table 2. and Figure 2., regression weight reveals that Export Performance (Y1) has a positive and significant influence on Economic Growth (Y2), and Growth of GDP in Partner Countries (X3) has a positive and significant influence on Economic Growth (Y2) indirectly through Export Performance (Y1). While both FDI (X1) and RER (X2) variables does not have a significant influence on Y1 and Y2.

The hypothesis (H1, H2 & H3) path analysis of direct and indirect effects result:

1. FDI (X1) toward Export Performance (Y1), coefficient value is 0.005 \(\approx\) 0.01 with P-value 0.78 means has a positive influence but not significant. FDI (X1) toward Economic Growth (Y2), coefficient value is 0.006 \(\approx\) 0.01 with P-value 0.86** means has a positive influence but not significant. So both path direct and indirect have not significant.

2. RER (X2) toward Export Performance (Y1), coefficient value is 0.076 \(\approx\) 0.08 with P-value 0.33 means has a positive influence but not significant. RER (X2) toward Economic Growth (Y2), coefficient value is 0.12* with P-value 0.06 (P-value < 0.10) means has a positive and significant influence.

3. Growth GDP Partner (X3) toward Export Performance (Y1), coefficient value is 0.86** with P-value 0.01 (P-value < 0.05) means has a positive and significant influence. Then, Export Performance (Y1) toward Economic Growth (Y2), coefficient value is 0.12* with P-value 0.06 (P-value < 0.10) means has a positive and significant influence. This means, when Growth GDP Partner increases by 1%, it will have an effect on increasing Economic Growth 0.103%, counted from \(\alpha_3\beta_2 = (0.86**)(0.12*)\).

4.2 Discussion

This study results that we have low R-Square, not well-specified model to include all the relevant predictors to explain an outcome variable, low R-Square values are often expected especially in social or behavioral sciences. According to Rodrik (1995) in most studies of the open economy and trade growth indicators, it often intersects with the macroeconomic aspects of government policy. The complex nature of commercial policies from export trade can be affected by tariffs, quotas, licenses, protection, and exchange controls. This shows that, efforts to build an export-oriented indicator will tend to produce disputes and controversy. It also means that in the context of research on the relationship between export trade policies and economic growth to be persuasive, the results of the analysis lead strongly to measuring / inducing (policy-induced) open economy (Edwards, S., 1997). This finding is inconsistent with the results of an empirical study by Salsabila, et al (2015) for the Indonesian manufacturing sector in period 2004-2013, which stated that FDI had a positive and significant effect on Indonesia's export value 0.44 means has a positive influence but not significant. So both path direct and indirect have not significant.
Foreign investment is a major driver of export trade. Yusoff and Nuh (2015), examines the relationship among trade openness, FDI, gross domestic investment (GDI) and economic growth in Thailand, over the period 1970-2008. The results of the Granger causality test suggest that FDI and GDI cause economic growth unidirectionally, while the causality between trade openness and real GDP per capita growth is bidirectional. The results of variance decomposition analysis show that FDI seems to be the most important determinant of Thailand’s real GDP per capita growth, followed by trade openness.

Which is indicating FDI realizations of South Sulawesi is not in accordance with the sectors supporting South Sulawesi Economic Growth. Investment fields related to cocoa are food crops and plantations; and food industry. Whereas five excellent investment fields in South Sulawesi, namely: mining; transportation, warehouse and communication; metal, machinery and electronics industries; chemical and pharmaceutical industries; and electricity, gas and water. The distribution of FDI and DDI (Domestic Direct Investment) realization during the study period was relatively unstable and even fluctuated in opposite directions. The FDI ratio is very volatile, in the range of 3.36% to 95.35%. In addition, the time lag factor also determines the success of the acquisition/realization of an investment.

Surjaningsih, N., et al (2014) found the real effective exchange rate (REER) index ranging from 82.24 to 101.13 over medium and large scale manufacturing companies during 2001-2009. The presence of the threshold is 82.24 for the REER which influence the profitability of manufacturing industry in Indonesia. While this paper for cocoa trading, we found that RER index in 2008 - 2015 are at the lowest rate 95.80 and the highest 121.61.

The results of an empirical study conducted by Sinurat (2008), which shows that the RER has a negative and significant effect on the performance of Indonesia's coffee exports in period 1999-2006 to 26 importing countries. Likewise, stated by Samanhudi (2009), using data on exports of Indonesian agricultural products to America for the period quarter-1 1999 to quarter-4 2007, found that, RER had a negative and significant effect on exports of Indonesian agricultural products to America. If import demand increases, which results in an increase in supply of the real price of a foreign currency or an over-valued exchange rate, then the domestic currency will experience an under-valued exchange rate. However, with a negative and significant RER, it went indirectly results an economic growth run slowdown.

In additional, according to Reviane, I.T.A. (2017) stated that trade liberalization directly has negative and significant effects to state revenues. It is hypothesized that more high degree of trade liberalization, will lead to elimination some of state revenue from taxes, particularly trade taxes. Also found that exchange rate is a moderator variable between the effect of trade liberalism towards the state income from tax and welfare, namely quasi moderator. And the paper by Weisbrot et al (2002), whose examined the relative impact of trade liberalization in developing countries, they found that there was a cost to be borne by the developing countries by liberalizing their trade that is often neglected, i.e. government revenue will be reduced.

This paper estimation results of Growth GDP Partners are in accordance with the hypothesis, which states that they have a positive and significant indirect effect on Economic Growth through Export Performance. The same as the results of an empirical study written by Yue and Hua (2002), which signifies that the GDP of trade partners has a significant and positive influence on increasing China exports in 1980-2000 and provinces of China in 1990-1998. Then there is research by Ogunleye and Ayeni (2008) in Nigeria in the period 1970-2003, with the results of studies showing that the performance of export supply has a positive effect on economic growth.

5 Conclusions and Recommendations
Growth in GDP Trading partners have a positive and significant effect on economic growth through export performance. The increase in GDP of trading partners has led to an increase in demand of raw materials and final products of the typical cocoa variant from South Sulawesi, to meet their domestic consumption and industrial needs. The level of elasticity ($E > 1$) of the demand for cocoa commodity imports determines export performance, which in turn will encourage South Sulawesi economic growth (export-led growth). Thus, the GDP growth of a positive and significant trading partner, indirectly drives the Economic Growth of South Sulawesi.

Government policy through authorized department provides rules, including: cocoa plant program with good quality and high productivity; promoting the cocoa processed product or final product intensively more than cocoa bean; planning investments and increasing investor interest in leading economic sectors, such as manufacturing; improve the quality and quantity of skilled and human resources ready-to-work, to strengthen the development of leading economic sectors; and diversifying export destinations and increasing the value added of export commodities.

References


